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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant : Jones, J. et al.  
Appl. No. : 09/471,153  
  
Filed : December 23, 1999  
Title : VEHICLE AXLE BEAM AND BRAKE ASSEMBLY  
  
Group Art Unit : 3613  
Examiner : NGUYEN, X.  
  
Docket No. : 08200.163

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**APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192**

October 22, 2003

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In follow-up to the Notice of Appeal filed September 22, 2003, Appellant respectfully requests the Board of Patent Appeals and Interferences consider the following arguments and reverse the decision of the Examiner in whole.

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**(1) Real Party in Interest**

The real party in interest is DANA Corporation, assignee to the instant invention.

**(2) Related Appeals and Interferences**

The present application was previously appealed (Appeal No. 2002-1648). The issue on appeal was whether claims 1, 4-6 and 8 are patentable over Dozier in view of Williams. The Board of Patent Appeals and Interferences reversed the decision of the Examiner to reject claims 1, 4 to 6 and 8.

**(3) STATUS OF CLAIMS**

1. Claims 1-8 were originally filed with the specification on December 23, 1999.
2. In the Official Action dated December 20, 2000, the Examiner rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over Dozier (US 4,452,347) (hereinafter referred to as Dozier) in view of Williams (US 5,887,687) (hereinafter referred to as Williams).
3. On March 20, 2001, Appellant filed Amendment presenting arguments for the patentability of claims 1-8.

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4. In the Official Action dated April 10, 2001, the Examiner rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over Dozier in view of Williams. The Examiner made this Official Action Final.

5. On July 10, 2001, Appellant filed Amendment and Request for Reconsideration canceling claims 2, 3 and 7, and presenting arguments for the patentability of claims 1, 4-6 and 8.

9. On July 20, 2001 the Examiner issued an Advisory Action and rejected claims 1, 4-6 and 8.

10. On October 10, 2001, Appellant filed a Notice of Appeal.

11. On December 10, 2001, Appellant filed Appellant's Brief.

12. The Examiner issued Examiner's Answer on January 10, 2002.

13. On February 27, 2002, Appellant filed Reply Brief.

14. The Board of Patent Appeals and Interferences reversed the Examiner's rejection of claims 1, 4 to 6 and 8 in a decision mailed on November 6, 2002.

15. In the Official Action dated January 16, 2003, the Examiner reopened the prosecution due to newly found art; claims 1 and 4-6 were rejected under 35 U.S.C. § 102(b) as being anticipated by Urban et al. (US 4,476,968) (hereinafter referred to as Urban), and claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Urban.

16. On April 8, 2003, Appellant filed Request for Reconsideration presenting arguments for the patentability of claims 1, 4-6 and 8.

17. 4. In the Official Action dated June 17, 2003, the Examiner maintained rejection of claims 1 and 4-6 under 35 U.S.C. § 102(b) as being anticipated by Urban, and claim 8 under

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35 U.S.C. § 103(a) as being unpatentable over Urban. The Examiner made this Official

Action Final.

18. On September 22, 2003, Appellant filed a Notice of Appeal.

#### **(4) STATUS OF AMENDMENT**

The Office Action finally rejecting claims 1, 4-6 and 8 was mailed on June 17, 2003.

No amendments were filed subsequent to the Final Office Action.

Applicant then filed a Notice of Appeal on September 22, 2003 to appeal the Examiner's rejection of claims 1, 4-6 and 8.

Subsequently, there have been no other papers filed by the Appellant or issued by the U.S. PTO.

#### **(5) SUMMARY OF THE INVENTION**

The instant invention is directed to an axle beam and self-contained drum brake assembly, particularly for heavy duty trucks. The brake assembly of the present invention comprises a brake spider secured to an axle beam preferably by welding to support all other components of the brake assembly. The brake spider includes a pivoting end support plate having one or more anchor pin bores, and an actuator support plate disposed substantially opposite to the pivoting end support plate. A pair of brake shoes is pivotally supported by anchor pin mounted within the anchor pin bore in the pivoting end support plate and is

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actuated by an S-cam fixed to a second end of a brake actuating shaft. The actuating shaft in turn is actuated by a pneumatic brake actuator. The present invention employs a mounting assembly that secures the pneumatic brake actuator and brake actuating shaft with the S-cam directly to the brake spider that allows to assemble the brake assembly as a module and use the same brake assembly for numerous variations of axle beams and suspension arrangements.

### **(6) ISSUES**

1. Whether claims 1, 4-6 and 8 are patentable over Urban.

### **(7) GROUPING OF THE CLAIMS**

Claims 1 and 4-6 stand and fall together. Claim 8 is separately patentable. The reasons Appellant considers claims 1 and 4-6 and 8 to be separately patentable are described below under sub-paragraphs (iii) and (iv) of Section (8) ARGUMENTS.

### **(8) ARGUMENTS**

#### **Sub-paragraph (i)**

This sub-paragraph is not applicable to the instant appeal in so far as there are no rejections under 35 U.S.C. § 112, first paragraph.

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Sub-paragraph (ii)

This sub-paragraph is not applicable to the instant appeal in so far as there are no rejections under 35 U.S.C. § 112, second paragraph.

Sub-Paragraph (iii)

Claims 1 and 4-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Urban. It is noted that claim 1 is an independent claim, claim 4 depends upon the independent claim 1, and claims 5 and 6 depend upon claim 4.

Urban discloses a drum brake assembly including the pneumatic brake actuator mounted to the spider 14. However, Urban fails to disclose the vehicle axle beam and the spider non-removably secured to the axle beam. By contrast, Urban discloses the spider 14 secured to portions of the vehicle by a plurality of suitable fasteners such as bolts (not shown) receivable through bolt circle holes 16. It is not clear which portion of the vehicle the spider 14 is secured to. It is well known to those skilled in the art that the brake spider is not necessarily secured to the axle beam. Urban does not disclose or provides any suggestion that the “portions of the vehicle” may be the axle beam.

The Examiner further alleges that it is clear from the Urban’s statement that “the spider assembly 14 includes a stamped spider member 52 having a generally annular aperture 54 therethrough for receipt of an axle shaft or the like” (col. 5, lines 35-37) that the Urban’s spider plate is secured to the axle beam, as claimed in the instant invention. However,

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contrary to the examiner's allegations, the above sentence of Urban does not mention the axle

beam at all. Urban simply states that the axle shaft that transmits torque from the final drive

and differential to the drive wheels extends through the aperture 54 in the spider member 52.

It is well known to one of ordinary skill in the automotive art, that the automotive drive axle

assemblies do not necessarily have the axle beams, such as independent drive axles of the

motor vehicles supported by independent suspensions. Thus, Urban fails to disclose the

vehicle axle beam and the spider secured to the axle beam.

Moreover, claim 1 recites the brake spider non-removably secured to the axle beam.

By contrast, Urban clearly describes the spider 14 secured to portions of the vehicle (not to

the axle beam) by a plurality of suitable fasteners such as bolts (not shown) receivable

through bolt circle holes 16, i.e. Urban discloses the spider 14 removably secured to the

vehicle. Obviously, such an arrangement is substantially less rigid than the axle beam and

brake assembly of the present invention, includes more parts, and is more expensive and

laborious in manufacturing and assembling.

A person of ordinary skills in the art would readily understand that the spider secured

to the vehicle by the fasteners, such as bolts, may not be possibly construed as non-removably

secured.

The Examiner further alleges that "the term "non-removably secured" is not defined in

the specification as only for welding". Contrary to the Examiner's allegations, it is well

known to one of ordinary skill in the art that the non-removable connections are those that

cannot be readily removed without destroying at least one of the connected elements. The

non-removable connections encompass elements connected by rivets, solder, adhesive

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bonding, welding, etc. One of ordinary skill in the art would easily distinguish the non-removable connections from the removable connections which are those that can be readily removed without destroying at least one of the connected elements. The removable connections encompass elements connected by bolts and nuts, screws, etc.

The Examiner further declares that "bolting is just as "non-removably" as welding until it is necessary to remove the spider plate by using a torch to cut the weld and to remove the spider plate." Following the Examiner's line of reasoning, all the connections are removable as virtually everything can be cut or taken apart to pieces with the torch, chain saw, or using an explosive charge. Therefore, the Examiner's assumption that the brake spider 14 of Urban attached to portions of the vehicle by a plurality of suitable fasteners is non-removably secured is erroneous. Thus, Urban fails to disclose the spider non-removably secured to the axle beam.

Therefore, the rejection of claims 1 and 4-6 under 35 U.S.C. 102(b) as being anticipated by Urban is improper.

Sub-paragraph (iv)

Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Urban. It is noted that claim 8 is an independent claim.

Examiner noted that Urban discloses most of the claimed features of claim 8 except for "brake spider welded to said axle beam" and "said actuator support plate being axially offset from said pivoting end support plate". The Examiner notes that it would have been



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obvious to one of ordinary skill in the art to use either the bolts or welds to secure the spider in the axle. As a proof, the Examiner notes that Urban disclose in col. 6, lines 44-47 that these two methods are used interchangeably and are considered as equivalents. We believe that the Examiner's position is in error.

First, as it was argued above with regard to the rejection of claims 1 and 4-6 under 35 U.S.C. 102(b), Urban fails to disclose the vehicle axle beam and the spider non-removably secured to the axle beam.

Furthermore, the Examiner's allegation is unsupported by the applied prior art and is inconsistent with the disclosure of Dozier, and the Examiner fails to cite any prior reference that would disclose an axle beam and drum brake assembly that comprises a brake spider welded to the axle beam, and a pneumatic brake actuator directly mounted to the brake spider through the mounting sleeve that would allow to assemble the brake assembly as a module and use the same brake assembly for numerous variations of axle beams and suspension arrangements.

Moreover, the Examiner's allegation that Urban disclose that the bolting and welding are used interchangeably and are considered as equivalents, is erroneous. Urban disclose in col. 6, lines 44-47 that the upper portion 116 of the rim 90 of the spider member 52 may either bolted or welded to the cam shaft tube 36. Obviously, this does not imply that bolting and welding are to be considered as equivalents, as one of ordinary skill in the art would clearly understand that bolted connections are substantially less rigid than the welded connections, include more parts, and are more expensive and laborious in manufacturing and assembling.

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The Examiner fails to prove as to why one having ordinary skill in the art would have found the claimed invention to be obvious in light of the teachings of Urban. Examiner's statement that modifications of Urban to meet the claimed invention would have been obvious to one having ordinary skill in the art at the time the invention was made because both bolting and welding were individually known in the art, is not sufficient to establish *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

MPEP 2143.01 specifically states that "a statement that modifications of the prior art to meet the claimed invention would have been " 'well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000)".

MPEP 2143.01 further states that the mere fact that references can be combined does not render the resultant combination obvious unless the references suggest the desirability of the combination, citing *In Re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There is no suggestion to support the Examiner's assertion. Clearly, the brake system of Urban cited by the Examiner fail to disclose or suggest the desirability of welding the brake spider to the axle beam.

Moreover, as stated in In re Kotzab, 217 F.3d 1365, 1369-70, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000):

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Most if not all inventions arise from a combination of old elements. Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant [citations omitted].

Clearly, Urban gives no indication, motivation, or suggestion of desirability to secure the brake spider by welding rather than by bolting. The mere fact that the welding connection of elements was known in the art at the time of appellants' invention would not have provided any suggestion to secure the brake spider by welding.

Therefore, the rejection of claim 8 under 35 U.S.C. 103(a) as being unpatentable over Urban is improper.

#### Sub-paragraph (v)

This sub-paragraph is not applicable to the instant appeal in so far as the final rejection does not raise any issues other than those referred to in sub-paragraphs (i)-(iv).

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### Conclusion

The foregoing arguments detail the failure of the Examiner's 35 U.S.C. 102(b) and 103(a) based rejections to survive scrutiny under the requirements of such rejections. Thus, the Examiner's rejections should be reversed and such a decision by the Board is respectfully sought.

Respectfully submitted:  
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**(9) APPENDIX**

1. A vehicle axle beam and drum brake assembly, comprising:
  - a pneumatic brake actuator cylinder provided with an actuator rod extending therefrom;
  - a brake actuating shaft having a first end and a second end;
  - a brake actuating lever interconnecting said actuator rod and said first end of said brake actuating shaft;
  - an S-cam secured to said second end of said brake actuating shaft;
  - a brake spider non-removably secured to said axle beam and adapted to support a brake assembly, said brake spider including a pivoting end support plate and an actuator support plate provided with an opening for receiving said brake actuating shaft therethrough;
  - a mounting sleeve having a first end and a second end, said first end of said mounting sleeve is secured to said pneumatic brake actuator cylinder and said second end of said mounting sleeve is secured to said actuator support plate of said brake spider, said brake actuating shaft rotationally supported and positioned within said mounting sleeve;
  - a pair of brake shoes pivotally supported on said pivoting end support plate of said brake spider, said brake shoes adapted to frictionally engage a bearing surface of a brake drum; and
  - a cam follower secured on each of said shoes and adapted to interfit with an outer surface of said S-cam,

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wherein when said actuator rod is extended, said brake actuating shaft and said S-cam rotate about the longitudinal axis such that said brake shoes are brought into frictional engagement with said bearing surface.

4. The vehicle axle beam and drum brake assembly as defined in claim 1, further comprising:

a first mounting bracket attached to said first end of said mounting sleeve; and  
a second mounting bracket attached to said second end of said mounting sleeve.

5. The vehicle axle beam and drum brake assembly as defined in claim 4, wherein said first mounting bracket is fastened to said pneumatic brake actuator cylinder.

6. The vehicle axle beam and drum brake assembly as defined in claim 4, wherein said second mounting bracket is fastened to said actuator support plate of said brake spider.

8. A vehicle axle beam and drum brake assembly, comprising:

a pneumatic brake actuator cylinder provided with an actuator rod extending therefrom;

a brake actuating shaft having a first end and a second end;

a brake actuating lever interconnecting said actuator rod and said first end of said brake actuating shaft;

an S-cam secured to said second end of said brake actuating shaft;

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a brake spider welded to said axle beam and adapted to support a brake assembly, said brake spider including a pivoting end support plate and an actuator support plate provided with an opening for receiving said brake actuating shaft therethrough, said actuator support plate being axially offset from said pivoting end support plate;

a mounting sleeve having a first end and a second end, said first end of said mounting sleeve is secured to said pneumatic brake actuator cylinder and said second end of said mounting sleeve is secured to said actuator support plate of said brake spider, said brake actuating shaft rotationally supported and positioned within said mounting sleeve;

a first mounting bracket attached to said first end of said mounting sleeve, said first mounting bracket is fastened to said pneumatic brake actuator cylinder;

a second mounting bracket attached to said second end of said mounting sleeve, said second mounting bracket is fastened to said actuator support plate of said brake spider;

a pair of brake shoes pivotally supported on said pivoting end support plate of said brake spider, said brake shoes adapted to frictionally engage a bearing surface of a brake drum; and

a cam follower secured on each of said shoes and adapted to interfit with an outer surface of said S-cam,

wherein when said actuator rod is extended, said brake actuating shaft and said S-cam rotate about the longitudinal axis such that said brake shoes are brought into frictional engagement with said bearing surface.